Cavalier for their phone and high speed DSL services" throughout the mid-Atlantic, and "Cavalier customers get the best in voice and data services with savings up to 30%."[56] Based on its E911 listings as of the end of December 2005, Cavalier is providing mass-market voice service using its own switches to customers in wire centers in the Philadelphia MSA that account for **** **** percent of Verizon's residential access lines in the MSA. Based on these same data, Cavalier provides service to more than **** **** residential lines in the Philadelphia MSA, in whole or in part using its own facilities, including in all cases its own switch.

33. In the Philadelphia MSA, Broadview has deployed a voice network and two data networks, along with a voice switch and a data switch.[57] Broadview states that it offers "[l]ocal calling and features priced 10% to 15% below Verizon standard rates."[58] Broadview offers two plans for circuit-switched residential service: the 4 Penny Package includes 500 local calls and 300 regional minutes of calling for $29.95 per month, and the No NonCents Residential Plan includes unlimited local, regional, and long-distance calling for $44.95 per month.[59] Optional calling features are available with both plans for an additional $5 per month.[60] Based on

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[56] Cavalier Telephone, *Switching to Cavalier Telephone & Save on Residential Telephone & High Speed DSL Services*, http://www.cavaliertelephone.com/residential/index.shtml.

[57] *Competitive Carrier Report 2006*, Ch. 6 – Broadview Networks, Inc. at 6-7.

[58] Broadview Networks, *Local & Regional: Save on Local and Regional Calling*, http://www.broadviewnet.com/Products_Services/Residential/LocalRegional.asp?scenario=1.

[59] Broadview Networks, *Residential: Promotions & Offers*, http://www.broadviewnet.com/PromosOffers/Residential/Res_NonCents.asp; Broadview Networks, *How Does the Broadview Networks No NonCents Residential Plan Stack Up Against Other Unlimited Plans*, http://www.broadviewnet.com/PromosOffers/Residential/Res_NonCentsComparison.asp?scenario=1.

[60] Broadview Networks, *Residential: Promotions & Offers: Voice Plans*, http://www.broadviewnet.com/PromosOffers/Residential/Res_Voice_Promos.asp.

Broadview's E911 listings as of the end of December 2005, Broadview is serving residential customers in wire centers that account for **** **** percent of Verizon's residential access lines in the MSA. Based on these same data, Broadview provides service to approximately **** **** residential lines in the Philadelphia MSA, in whole or in part using its own facilities, including in all cases its own switch.

34. A number of CLECs serve mass-market customers using Verizon's Wholesale Advantage product – which is the market-based successor to the regulated UNE platform service that Verizon was at one time required to provide. Some CLECs also resell Verizon's retail residential service. As of the end of December 2005, competitors are serving approximately **** **** voice-grade equivalent residential lines in the Philadelphia MSA using Wholesale Advantage, and **** **** residential lines on resale basis.

D. Over-the-Top VoIP

35. Consumers who today are unable to receive telephone services directly from their cable company can usually obtain them from multiple independent over-the-top VoIP providers. Any customer who has access to cable modem or other broadband services – which more than 90 percent of U.S. households now do[61] – can obtain voice services from one of these providers. VoIP vastly expands the number of competitors that can offer mass-market voice telephone service because they can offer VoIP over any type of broadband facility provided by any other company. Broadband access through satellite, BPL, Wi-Fi, and WiMax is emerging, and these technologies will offer an alternative means through which mass-market customers can access

[61] *See* NCTA, *Broadband Availability*, http://www.ncta.com/ContentView.aspx?contentId=60 (116.1 million homes passed by cable modem service as of 2005); *see also* NCTA, *2006 Industry Overview* at 11 & Chart 6 (cable modem service is available to approximately 93 percent of homes passed by cable as of year-end 2005) (citing Morgan Stanley).

VoIP service.[62] Vonage, the largest of the new over-the-top providers, currently offers local numbers in 44 states and the District of Columbia.[63] Vonage already is approaching two million VoIP subscribers, and reports that it is adding an average of more than 22,000 subscribers each week.[64]

36. As shown in Exhibit 2, mass-market customers in the Philadelphia MSA can choose from at least 25 over-the-top VoIP providers who offer local phone numbers. These VoIP providers are offering service at prices that are competitive to Verizon's service, with plans that start at $5.95 for metered service (ZingoTel's 100-minute Basic plan) and $14.95 for unlimited service (ZingoTel's Residential Unlimited plan). Verizon has prepared a chart that compares the prices and features of voice telephone service offerings of several leading competitors in the Philadelphia MSA. *See* Exhibits 1 & 2. For example, Vonage and AT&T both offer unlimited local and long-distance packages for $24.99 per month.[65] Vonage also offers a VoIP package for $14.99 per month that includes 500 minutes with additional minutes at 3.9 cents.[66] Packet8, Lingo, and BroadVoice offer similar packages for $19.99 or less, not including promotional discounts such as the first month free.[67] *See* Exhibit 2. Some providers

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[62] *See, e.g., Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd 14853, ¶ 33 (2005).

[63] Vonage, *Available Area Codes*, http://www.vonage.com/avail.php?lid=nav_avail.

[64] *See* Vonage, Form 10-Q at 14 (SEC filed Aug. 4, 2006). More than 95 percent of Vonage subscribers are in the U.S. *See* Vonage, Form S-1A at 1 (SEC filed May 23, 2006).

[65] Vonage, *Premium Unlimited Plan*, http://www.vonage.com/services_premium.php; AT&T, *Plans & Pricing*, http://www.usa.att.com/callvantage/plans/index.jsp.

[66] Vonage, *Basic 500 Plan*, http://www.vonage.com/products_basic.php.

[67] Packet8, *Residential Plans*, http://www.packet8.net/about/residential.asp; Lingo, *Home Plans*, http://www.lingo.com/voip/residential/home_plans.jsp; BroadVoice, *Rate Plans, Compare Plans*, http://www.broadvoice.com/rates_compare.html.

offer pay-as-you-go plans, often with a small number of minutes, for $5.95 to $9.99, to attract low-volume users. *See* Exhibit 2.

37. For customers who have not yet subscribed to broadband service, the combination of broadband service and VoIP is competitive with what customers pay for a narrowband combination of local, long-distance and dial-up Internet access. One study concluded that the average narrowband household could capture a net savings of $6 per month by subscribing to broadband and migrating to VoIP service.[68] In fact, many subscribers appear to be making the switch from narrowband to broadband principally in order to obtain VoIP phone service. According to a recent study by Bernstein Research, at least 40 percent of all VoIP subscribers are new subscribers to broadband services that are attracted to the voice-data-video bundle that cable operators offer.[69] As Bernstein explains, cable "[v]oice bundles induce not only existing HSD [high-speed data] customers to add voice to existing bundles, they also add incremental growth to HSD through three separate mechanisms. First, they induce new customers either to *convert* from dial-up to HSD in order to get the bundled phone price; second, they induce DSL customers to switch to cable HSD in order to get the bundled phone price; and/or third, they induce HSD customers to retain their HSD service, thereby reducing churn."[70]

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[68] *See* M. Rollins, *et al.*, Citigroup, *Share Wars – Telco vs. Cable* at 7 (Oct. 5, 2005) (assuming $50 a month landline service & $21 a month dial-up, replaced by $40 a month cable modem service and an independent VoIP provider at $25 a month); *see also* C. Moffett, *et al.*, Bernstein, *Quarterly VoIP Monitor: The "Halo Effect" of VoIP is Driving Faster Subscriber Growth* at 4 (Sept. 2, 2005) ("[T]he bundled price of VoIP and broadband is compelling to dial-up subscribers, for whom the cost of upgrading to broadband is more than offset by the savings on telephony.").

[69] *See* C. Moffett, *et al.*, Bernstein Research, *Cable and Satellite: ~40% of Cable VoIP Customers "New" to Broadband* (July 6, 2006).

[70] *Id.* at 3.

38. Many customers view VoIP service as a replacement for their primary telephone line. For example, approximately 60-70 percent of Vonage's subscribers are porting their telephone numbers.[71] Analysts estimate that over-the-top VoIP providers will displace five percent of local telephone access lines by the end of 2010.[72]

III. COMPETITION FOR ENTERPRISE SERVICES

39. Just as there is intense competition for mass-market customers in the Philadelphia MSA, the same is true for enterprise customers. Indeed, this is widely considered the most competitive segment of the telecommunications industry.[73] The Commission has recognized that competition for medium and large enterprise customers is "strong" and is poised to remain so because these customers "are sophisticated, high-volume purchasers of communications services that demand high-capacity communications services" and because there are a "significant number of carriers competing in the market."[74] These competitors "include interexchange

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[71] *See* D. Shapiro, *et al.*, Banc of America Securities, *Battle for the Bundle* at 30 (June 14, 2005).

[72] *See* J. Chaplin, *et al.*, JPMorgan, *Telecom Services/Wireline: State of the Industry: Consumer* at 12 (Jan. 13, 2006).

[73] *SBC Communications Inc. and AT&T Corp. Applications for Approval of Transfer of Control*, Memorandum Opinion and Order, 20 FCC Rcd 18290, ¶ 73 n.223 (2005) ("competition in the enterprise market is robust"); *Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation for Consent to Transfer Control of Licenses and Authorizations, et al.*, Memorandum Opinion and Order, 19 FCC Rcd 21522, ¶ 248 n.590 (2004) ("[W]e note that [] competition is greater for enterprise services than for mass market services."); *Federal Communications Commission 2004 Biennial Regulatory Review; Consumer & Governmental Affairs Bureau*, Staff Report, 20 FCC Rcd 88, Appendix, ¶ 44 (2005) ("Competition for business customers in metropolitan areas, in general, continues to develop more rapidly than competition for residential customers or customers in rural areas.").

[74] *Verizon Communications Inc. and MCI, Inc. Applications for Approval of Transfer of Control*, Memorandum Opinion and Order, 20 FCC Rcd 18433, ¶ 56 (2005) ("*Verizon/MCI Order*")..

carriers, competitive LECs, cable companies, other incumbent LECs, systems integrators, and equipment vendors."[75]

40. Although not all of the carriers that serve enterprise customers own and operate their own facilities, there is an extensive wholesale market for these facilities. In fact, no telecommunications carrier in the United States, including Verizon, has ubiquitous high-capacity telecommunications facilities that are capable of serving all the needs of commercial and institutional customers. As a result, all retail service providers must depend, to a greater or lesser degree, on multiple facilities-based carriers to create a network that can serve all of the needs of commercial and institutional customers. Furthermore, provision of underlying facilities is only one component of offering service, because commercial and institutional customers demand integrated communications solutions that are likewise compatible with their overall information technology infrastructure.

41. While Verizon is one of the largest wholesale suppliers to other competing carriers in the enterprise market, it provides the vast majority of wholesale inputs to these carriers as special access, not as unbundled network elements. In the *Omaha Forbearance Order*, the Commission acknowledged that this form of wholesale competition was relevant in evaluating whether competition is sufficient to constrain Verizon's prices in the enterprise market.[76]

A. Overview of Enterprise Competition in the Philadelphia MSA

42. The major cable operators in the Philadelphia MSA offer service to business customers, using both their cable networks and fiber networks that they have deployed

[75] *Id.* ¶ 64.

[76] *See Omaha Forbearance Order* ¶ 68.

specifically to serve business customers. According to data from GeoTel, there are at least 12 known competing carriers that operate fiber networks within the Philadelphia MSA and these networks span approximately **** **** route miles. Exhibits 5 and 6 contain maps of these networks. As these maps indicate, there are at least one or more known competing fiber providers in **** **** percent of wire centers in the Philadelphia MSA. These wire centers represent approximately **** **** percent of Verizon's retail switched business lines in the MSA. These data also show that there are one or more known competing fiber providers in at least **** **** percent of the **** **** wire centers in the Philadelphia MSA that account for 80 percent of Verizon's high-capacity special access revenues.

43. Based on Verizon's business E911 listings data as of the end of December 2005, competing carriers are serving business customers in **** **** percent of the wire centers in the Philadelphia MSA, and these wire centers account for **** **** percent of Verizon's retail switched business lines in the MSA. As of this same date, competitors had obtained at least **** **** business E911 listings. These data provide an estimate of the number of business lines that competitors are serving. Each E911 residential subscriber listing necessarily represents one customer access line, but in the case of business customers a listing does not necessarily correlate one-to-one based on the manner in which the service is provided. Importantly, competitors do not typically obtain E911 listings for lines that are used to provide data services. In any event, this total indicates that competitors controlled at least **** **** percent of switched business lines in the Philadelphia MSA.

44. Based on Verizon's wholesale billing records from December 2005, competitors are serving approximately **** **** voice-grade equivalent lines in the Philadelphia MSA using special access: approximately **** **** voice-grade equivalent lines

using DS3s, approximately **** **** voice-grade equivalent lines using DS1s, approximately **** **** voice-grade equivalent lines using DS0s, and approximately **** **** voice-grade equivalent lines using OCN, FMS, or other services. As of this date, competitors are serving an additional **** **** voice-grade equivalent lines using DS1 private lines, and **** **** voice-grade equivalent lines using DS0 private lines. Competitors are using special access to serve business customers in **** **** in the Philadelphia MSA.

45. As of the end of December 2005, approximately 25 CLECs are collocated in Verizon's central offices in the Philadelphia MSA. These competitors are collocated in a total of **** **** central offices that reach **** **** percent of Verizon's retail access lines in the MSA, and approximately **** **** percent of Verizon's retail switched business lines in the MSA.

B. Summary of Major Facilities-Based Competitors in the Philadelphia MSA

46. In the Philadelphia MSA, there are large numbers of facilities-based providers competing for enterprise customers today, including cable operators such as Comcast and RCN, as well as traditional telecom carriers such as AT&T, Sprint, Level 3, Global Crossing, Broadwing, PAETEC, and One Communications. In addition, Verizon increasingly faces competition from carriers who aggregate facilities from multiple sources and combine them with their own value-added services. Such competitors include systems integrators and managed service providers (like IBM, EDS, Accenture, Northrop Grumman, and Lockheed Martin), equipment vendors (like Lucent and Nortel), and, most recently, major application providers (like Microsoft).

1. Cable Operators

47. The nation's major cable operators are now actively pursuing commercial and institutional customers. Cable operators originally focused on small businesses, but they have broadened their reach to offer individualized services to medium-sized businesses and even to large enterprise customers. Cable operators are providing high-capacity services to business customers both by deploying fiber to office buildings, and by extending their hybrid fiber-coax networks to business districts in order to provide cable modem services to business customers.[77] Each of the major cable companies in the Philadelphia MSA has web pages devoted to voice services specifically for business customers.[78] *See* Exhibit 7.

48. Comcast offers business customers service through its subsidiary, Comcast Commercial.[79] Comcast offers a variety of data services to business customers in the Philadelphia MSA, including dedicated Internet access, Ethernet, and metropolitan area network services.[80] Comcast also offers cable modem services for use by smaller businesses.[81] In addition, Comcast offers data services to other telecommunications carriers, leveraging "the

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[77] *See Verizon/MCI Order* ¶¶ 30, 60 & n.170, 64, 65, 67 & n.188, 74, 77.

[78] *Comcast*, http://www.comcastcommercial.com/index.php?option=content&task=view&id=24&Item=56; *RCN*, http://www.rcn.com/business/prodserv/voice.php; *Time Warner*, http://www.twtelecom.com/cust_solutions/services/biz_switched.html.

[79] Comcast Commercial, http://www.comcastcommercial.com/index.php?option=com_frontpage&Itemid=1.

[80] Comcast Commercial, *Services*, http://www.comcastcommercial.com/index.php?option=content&task=view&id=6&Itemid=27; Comcast Commercial, *Enterprise Network Service*, http://www.comcastcommercial.com/index.php?option=content&task=view&id=8&Itemid=37.

[81] Comcast, *Comcast Workplace*, http://www.comcast.com/business/Availability.ashx (using zip code 19116).

massive network of our parent company."[82] For carriers, Comcast says it offers "[c]ost-effective transport that can reach into new markets and scale at a moments notice."[83] As of the end of December 2005, Comcast had over **** **** business E911 listings in the Philadelphia MSA.

49. According to RCN, "RCN Business Solutions provides an unparalleled set of business services as a CLEC, CAP, ISP and MSO. All of our solutions are delivered over the RCN state-of-the-art fiber optic network."[84] RCN states that RCN Business Solutions relies on its "advanced, dense metropolitan fiber optic network for: Wholesale markets . . . Enterprise markets: hospitality/lodging, broadcast media; education; finance; construction; and real estate vertical markets. . . [and] Government markets: federal, state and local municipalities."[85] In the Philadelphia MSA, RCN operates a fiber network that runs through downtown Philadelphia.[86] RCN also has a voice switch deployed in the Philadelphia MSA.[87] According to data from GeoTel, RCN's Philadelphia network is comprised of approximately **** **** route miles of fiber. RCN offers a variety of voice and data services to business customers, including Gigabit Ethernet, SONET services, wavelength transport services, collocation, local voice

[82] Comcast Commercial, *Telecommunications: Increasing Margins with Lower Transport Costs*, http://www.comcastcommercial.com/index.php?option=content&task=view&id=33&Itemid=71.

[83] *Id.*

[84] RCN Business Solutions, *About Us*, http://www.rcnbusinesssolutions.com/about/index.php.

[85] RCN Press Release, *RCN Enhance Company's Business Solutions Division; Targets Enterprise, Wholesale Carriers & Government* (Oct. 10, 2005).

[86] RCN, *Metro Maps: Philadelphia, PA*, http://www.rcnbusinesssolutions.com/images/metro_maps/fiber-route-philadelphia-lg.jpg.

[87] *Competitive Carrier Report 2006*, Ch. 6 – RCN at 7.

origination and termination services, and IP transit services.[88] RCN says it also offers "carrier services [which] leverage [RCN's] self-owned and operated fiber optic network to develop carrier grade solutions that meet [carrier's] 'First Mile' needs."[89] As of the end of December 2005, RCN had more than **** **** business E911 listings in the Philadelphia MSA.

2. Traditional Telecommunications Carriers

50. AT&T is the largest competitor for enterprise customers in the nation. AT&T states that it is "No. 1 in large-business customers," and that "virtually all of the Fortune 1000 companies and all of the Standard & Poor's (S&P) 500 are customers."[90] AT&T has deployed three voice networks and one data network, along with six voice switches and one data switch, in the Philadelphia MSA.[91] According to GeoTel data (which we understand to be incomplete), AT&T has an approximately **** **** route-mile fiber-optic network in Philadelphia. AT&T offers the full range of voice and data services for enterprise customers in Philadelphia, including local and long-distance voice services, private lines, Ethernet, ATM, Frame Relay, Managed Internet, IP VPNs, and hosting services.[92] As of the end of December 2005, AT&T had approximately **** **** business E911 listings in the Philadelphia MSA. In

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[88] RCN, *Network Services*, http://www.rcnbusinesssolutions.com/services/network_services/index.php; RCN, *Services*, http://www.rcnbusinesssolutions.com/services/index.php; RCN, *Managed Data Services*, http://www.rcnbusinesssolutions.com/services/managed_data_services/index.php.

[89] RCN, *RCN Business Solutions: Wholesale*, http://www.rcnbusinesssolutions.com/index.php?oc=who.

[90] AT&T News Release, *AT&T Positioned in the Leaders Quadrant in Magic Quadrant Report for U.S. Managed and Professional Network Service Providers* (July 17, 2006); AT&T, *2005 Annual Report* at 1 (2006).

[91] *Competitive Carrier Report 2006*, Ch. 6 – AT&T at 5-10.

[92] AT&T, *Enterprise Business: Products & Services*, http://www.business.att.com/services.jsp?repoid=ProductCategory&segment=ent_biz.

addition, AT&T says it offers "an array of Local and Long-Haul Dedicated Private Line & SONET Services, from Single Channel to OC192 (Wavelength) Services" for use by other telecom carriers.[93]

51. ATX Communications offers a variety of voice and data services to business customers in Philadelphia. These include local and long distance voice, T1s, DS3s, PRI services, frame relay, private lines, VPN and VoIP services.[94] As of the end of December 2005, ATX had over **** **** business E911 listings in the Philadelphia MSA. Broadview Networks recently announced that it will acquire ATX.[95]

52. Broadview began providing service in the Philadelphia MSA in 2000.[96] Broadview has deployed a voice network and two data networks, along with a voice switch and a data switch, in the Philadelphia MSA.[97] Broadview offers a range of voice and data services to business customers, including local and long-distance voice, ISDN-PRI, VoIP, dedicated Internet access, and web hosting.[98] As of the end of December 2005, Broadview had approximately **** **** business E911 listings in the Philadelphia MSA.

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[93] AT&T, *Wholesale: Private Line Services*, http://www.business.att.com/service_fam_overview.jsp?repoid=ProductSub-Category&repoitem=w_privateline&serv_port=w_data&serv_fam=w_privateline&segment=whole.

[94] ATX, *Solutions*, http://www.atx.com/solutions_home.php.

[95] ATX Press Release, *Broadview Networks to Acquire ATX Communications* (June 27, 2006).

[96] Broadview Press Release, *Broadview Network Reaches 100,000 Lines* (Jan. 2, 2001).

[97] *Competitive Carrier Report 2006*, Ch. 6 – Broadview Networks, Inc. at 6-7.

[98] Broadview Networks, *Voice Services*, http://www.broadviewnet.com/Products_Services/Business/VoiceServices.asp?scenario=0; Broadview Networks, *Data & High-Speed Internet*, http://www.broadviewnet.com/Products_Services/Business/DataHighspeed.asp?scenario=0.

53. Broadwing owns an advanced fiber-optic network connecting over 100 cities in the United States.[99] In the Philadelphia MSA, Broadwing has deployed two voice networks and one data network, along with two voice switches.[100] According to GeoTel data, Broadwing operates an approximately **** **** route-mile fiber-optic network in Philadelphia. Broadwing offers a variety of voice and data services for enterprise customers, including switched and dedicated voice services, private lines, wavelength services, both public and private IP, and wide area networking.[101] Broadwing also offers all of the above services for use by its carrier customers, including private lines which, according to the company, "provide[] a flexible, cost-effective, seamless solution for infrastructure, voice, video and data applications."[102] As of the end of December 2005, Broadwing had more than **** **** business E911 listings in the Philadelphia MSA.

54. Cavalier Telephone has an approximately **** **** route-mile fiber-optic network in the Philadelphia MSA (based on GeoTel data), as well as voice switches in Philadelphia and Warminster.[103] Cavalier offers a variety of voice and data services in and around Philadelphia, including PBX/DID services, ISDN-BRI, ISDN-PRI, private lines,

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[99] Broadwing Corp., Form 10-K (SEC filed Mar. 6, 2006).

[100] *Competitive Carrier Report 2006*, Ch. 6 – Broadwing at 8-9.

[101] Broadwing, *Data Services*, http://www.broadwing.com/enterprise-d4.html; Broadwing, *Voice Services*, http://www.broadwing.com/enterprise-d5.html.

[102] Broadwing, *Carrier Services*, http://www.broadwing.com/carrier.html; Broadwing, *Carrier Services: Private Line*, http://www.broadwing.com/carrier-e402.html.

[103] Cavalier Telephone, *Fiber Map*, http://www.cavtel.com/graphics/business/FiberMapWithDialCropLG.gif; *Competitive Carrier Report 2006*, Ch. 6 – Cavalier Telephone Corp. at 5.

dedicated Internet access, frame relay, Ethernet, collocation, and domain hosting.[104] Cavalier also offers carrier services, such private OC48 and Gigabit Ethernet rings and metro dark fiber rings, as well as "Metro transport [from] DS1 to OC-48."[105] As of the end of December 2005, Cavalier had over **** **** business E911 listings in the Philadelphia MSA.

55. CTSI is a wholly-owned subsidiary of Commonwealth Telephone Enterprises, a Pennsylvania ILEC.[106] CTSI offers a variety of voice and data services in the Philadelphia MSA, including local and long distance voice, DSL, and T-1s.[107] CTSI has a network, including a DWDM node, in Philadelphia.[108] CTSI also offers services for carriers, including high-speed access from DS0 through OC48, dark fiber services, PRI services, ATM services, and VPNs.[109] As of the end of December 2005, CTSI had approximately **** **** business E911 listings in the Philadelphia MSA.

56. Global Crossing has deployed a data network in the Philadelphia MSA.[110] Global Crossing offers a full range of voice and data services for enterprise customers, including local and long-distance voice, VoIP, Frame Relay, ATM, private lines, wavelength services, collocation, dedicated Internet access, IP VPNs, and metro and local access services.[111] Global

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[104] Cavalier Telephone, *Pennsylvania Business and Data Services from Cavalier*, http://www.cavtel.com/business/pennsylvania.shtml.

[105] Cavalier Telephone, *Wholesale Solutions*, http://www.cavtel.com/wholesale/index.shtml.

[106] CTSI, *About CTSI*, http://www.ctsi1.com/company/ctsi_about.html.

[107] CTSI, *Voice Solutions*, http://www.ctsi1.com/business/bus_voice.html; CTSI, *DSL & Data*, http://www.ctsi1.com/business/bus_dsl.html.

[108] CTSI, *Network*, http://www.ctsi1.com/carrier/carrier_network.html.

[109] CTSI, *Carrier Services: Products*, http://www.ctsi1.com/carrier/carrier_products.html.

[110] *Competitive Carrier Report 2006*, Ch. 6 – Global Crossing at 7.

[111] Global Crossing, *Enterprise Products*, http://www.globalcrossing.com/xml/services/serv_products.xml.

Crossing also offers many of these same services on a wholesale basis for use by other telecommunications carriers.[112] The company says its "Metro Network Services allow [] customers to link to [Global Crossing's] high-speed, intra-city, SONET/SDH and DWDM rings."[113] As of the end of December 2005, Global Crossing had more than **** **** business E911 listings in the Philadelphia MSA.

57. Level 3 operates an approximately **** **** route-mile metropolitan fiber network in Philadelphia, which connects to numerous buildings, central offices, and neutral interconnection points.[114] Using this network, Level 3 is able to offer an extensive array of data services to both enterprise and carrier customers, including metro Ethernet, private lines, wavelength services, dark fiber, IP VPNs and collocation.[115] Level 3 also offers wholesale IP voice services.[116] According to Level 3, "[t]he Level 3 Metro Private Line service meets your needs to move data traffic between major data aggregation points in a given geographic area, such as carrier hotels, peering points, and Central Offices (COs)," and "includes DS-1, DS-3, OC-3/3c, OC-12/12c, and OC-48/48c and OC-192 capabilities."[117] Level 3 recently acquired

[112] Global Crossing, *Carrier Products*, http://www.globalcrossing.com/xml/carrier/car_products.xml.

[113] Global Crossing, *Carrier Products: Metro Network Service*, http://www.globalcrossing.com/xml/carrier/car_access_metro_over.xml.

[114] Level 3, *The Level 3 Network*, http://www.level3.com/673.html; Level 3, *Philadelphia Buildings List*, http://www.level3.com/userimages/dotcom/network/NA/philadelphia_buildings.htm.

[115] Level 3, *Metropolitan Networks*, http://www.level3.com/3385.html; Level 3, *Services*, http://www.level3.com/3383.html.

[116] Level 3, *Services*, http://www.level3.com/3383.html.

[117] Level 3, *Level 3 Metro Private Line Service*, http://www.level3.com/557.html.

ICG Communications, TelCove (fiber-optic network connecting 221 lit buildings, 33 lit local service offices, and 12 lit IXC POPs[118]) and Looking Glass Networks.[119]

58. One Communications, recently formed through the merger of Choice One Communications, CTC Communications, and Conversent Communications, claims to be "the largest privately-held competitive local exchange carrier in the United States."[120] One Communications has a data network in Philadelphia.[121] It offers a variety of voice and data services in the Philadelphia MSA, including "local and long distance [voice], high-speed Internet, T1 service, managed services including VoIP, Web hosting, and Web development services."[122] As of the end of December 2005, One Communications had approximately **** **** business E911 listings in the Philadelphia MSA. In addition to retail services, One Communications offers carrier services that "can provide a fully-protected, dedicated DS1, DS3, or OCxN circuit with full channel, point-to-point capacity."[123]

59. OnFiber, including the company formerly known as Telseon, operates an approximately **** **** route-mile fiber network in Philadelphia.[124] OnFiber provides

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[118] TelCove, *Philadelphia, PA Fiber Map*, http://www.telcove.com/maps/PA_Philadelphia_Feb-06.jpg.

[119] Level 3 Press Release, *Level 3 Completes ICG Acquisition* (May 31, 2006); Level 3 Press Release, *Level 3 Reports Second Quarter Results* (July 25, 2006); Level 3 Press Release, *Level 3 Completes Looking Glass Networks Acquisition* (Aug. 3, 2006).

[120] One Communications Press Release, *Choice One Communications and CTC Communications Finalize Merger; Simultaneously Complete Acquisition of Conversent Communications* (July 3, 2006).

[121] *Competitive Carrier Report 2006*, Ch. 6 – CTC Communications at 8.

[122] One Communications, *About Us*, http://onecommunications.com/about-us.php.

[123] One Communications, *Choice One Carrier Services: Metro Private Line*, http://www.choiceonecom.com/products/wholesale/wholesale_metro.php.

[124] OnFiber, *Network: Philadelphia*, http://www.onfiber.com/content/index.cfm?fuseaction=showContent&navID=28&contentID=50.

numerous data services to enterprise and carrier customers, including wavelength services (from 1.25 Gbps to 10 Gbps), Ethernet services (from 10 Mbps to 1 Gbps), and SONET services (from DS3 to OC192).[125] OnFiber originally deployed the Philadelphia network prior to September 2001.[126] OnFiber claims that it "offers carriers and service providers a better alternative to the traditional access provider."[127] Qwest recently announced that it would acquire OnFiber.[128]

60. PAETEC Communications is a national communications solutions provider specializing in IP-based services.[129] PAETEC has deployed a voice switch in Philadelphia, and counts Philadelphia as part of its "Local Service Areas."[130] PAETEC offers a variety of voice and data services in Philadelphia, including local and long-distance voice services, VoIP, frame relay, IP VPN, managed VPNs, and dedicated Internet access.[131] As of the end of December 2005, PAETEC had over **** **** business E911 listings in the Philadelphia MSA.

[125] OnFiber, *Solutions: Services*, http://www.onfiber.com/content/index.cfm?fuseaction=showContent&contentID=63&navID=62.

[126] OnFiber Press Release, *OnFiber Communications Launches Broadband Connectivity Services in Houston* (Sept. 26, 2001) ("OnFiber currently owns and operates networks in the San Jose - Bay Area, Seattle, Dallas and Philadelphia.").

[127] OnFiber, *Customers: Service Providers*, http://www.onfiber.com/content/index.cfm?fuseaction=showContent&contentID=27&navID=27.

[128] OnFiber Press Release, *Qwest to Acquire OnFiber Communications, Inc.* (May 15, 2006).

[129] PAETEC News Release, *PAETEC Exceeds 675,000 Access Lines* (Oct. 14, 2004). PAETEC recently agreed to merge with US LEC, creating a "Premier Communications Provider" to enterprise customers. PAETEC News Release, *PAETEC and US LEC to Combine in $1.3 Billion Transaction* (Aug. 14, 2006).

[130] PAETEC, *Wholesale Markets: Switch Sites and LATAs*, http://www.paetec.com/1_5/1_5_11__1.html; PAETEC, *Network Map*, http://www.paetec.com/2_1/2_1_5__2.html.

[131] PAETEC, *Offerings*, http://www.paetec.com/1_1/1_1__1.html.

61. Sprint is one the nation's largest long-distance carriers, with an extensive, national fiber-optic network and a large base of enterprise customers.[132] Sprint's Philadelphia metropolitan area network was deployed prior to March 2003.[133] Sprint offers a full suite of voice and data services, including local and long-distance voice, VoIP, ATM, frame relay, Ethernet, private lines, IP VPNs, and dedicated Internet access.[134] According to Sprint, in addition to retail services, the company's "Sprint Wholesale Private Line services provide dedicated wide area networks (WANs) links to enhance data and voice communications for your customers and your own network."[135]

62. US LEC has deployed both a voice and a data network, along with a voice switch, in Philadelphia, and serves downtown Philadelphia, West Chester, Cherry Hill, Bethlehem, Wilmington and Southern New Jersey.[136] US LEC, which began offering service in

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[132] Sprint, *Leadership & Innovation*, http://www.sprint.com/business/products/whySprint/leadershipInnovation.jsp ("95% of the FORTUNE 1000 use Sprint"); Sprint, *The Network*, http://www.sprint.com/business/products/whySprint/theNetwork.jsp (Sprint's "IP, ATM, and Frame Relay networks offer seamless interconnectivity, eliminating the need for extensive (and expensive) physical overhauls or conversions. ... The bottom line is infrastructure and we have spent years investing in ours to make it among the most robust and consistently reliable in the industry.").

[133] *Sprint: 30 Metro Ethernet Installations by 2004*, OpticallyNetworked.com (Mar. 10, 2003), http://www.opticallynetworked.com/news/article.php/2107161 ("MANs are established in markets where customer demand for Sprint network quality and survivability is the highest. Those markets currently are: . . . Philadelphia.").

[134] Sprint, *Landline Phone*, http://www.sprint.com/business/products/sections/landlinePhone.html; Sprint, *Internet & IP*, http://www.sprint.com/business/products/sections/internetAndIp.jsp; Sprint, *Networking*, http://www.sprint.com/business/products/sections/networking.jsp.

[135] Sprint, *Sprint Wholesale Private Line*, http://www.sprint.com/wholesale/nl_products_data_privateline.html.

[136] *Competitive Carrier Report 2006*, Ch. 6 – US LEC at 11-12; US LEC, *Philadelphia*, http://www.uslec.com/l-philadelphia.aspx. US LEC recently agreed to merge with PAETEC, creating a "Premier Communications Provider" to enterprise customers. PAETEC News Release, *PAETEC and US LEC to Combine in $1.3 Billion Transaction* (Aug. 14, 2006).

Pennsylvania in 1999, offers a variety of voice and data services in the state, including local and long-distance voice, frame relay, ATM, private lines, MPLS VPNs, IP VPNs, dedicated Internet and collocation services.[137] In addition, US LEC states that its "wholesale offering provides carriers US domestic termination services throughout its 16-state footprint."[138] As of the end of December 2005, US LEC had over **** **** business E911 listings in the Philadelphia MSA.

63. XO provides an extensive array of voice, data, Internet access, security solutions, and integrated and managed services to Fortune 500 companies.[139] In the Philadelphia MSA, XO has deployed one voice and two data networks, along with two voice switches.[140] According to data from GeoTel, XO has deployed an approximately **** **** route-mile fiber-optic network in Philadelphia. XO also has a long haul termination point and two metro IP nodes in Philadelphia, and its private line backbone and OC192 BLSR rings run through the MSA.[141] XO also offers many of its services for use by carrier customers, such as "Carrier Private Line services [which] provide high-speed, dedicated point-to-point connectivity for voice, data and video applications."[142] As of the end of December 2005, XO had approximately **** **** business E911 listings in the Philadelphia MSA.

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[137] US LEC, *Pennsylvania Fact Sheet*, http://www.uslec.com/pennsylvania-ssi.aspx.

[138] US LEC, *Wholesale Voice*, http://www.uslec.com/wholesale-voice.aspx.

[139] XO Communications, *XO Products and Programs*, http://www.xo.com/products/.

[140] *Competitive Carrier Report 2006*, Ch. 6 – XO Communications at 7-10.

[141] XO Communications, *Private Line Assets*, http://www.xo.com/about/network/maps/privateline_large.html; XO Communications, *IP Network Assets*, http://www.xo.com/about/network/maps/ip_large.html.

[142] XO, *XO Carrier Private Line*, http://www.xo.com/products/carrier/transport/privateline/index.html; XO Communications, *XO Carrier Services*, http://www.xo.com/products/carrier/.

64. Other CLECs operating in the Philadelphia MSA include Covad,[143] Deltacom,[144] and Xspedius Communications (which has recently agreed to be acquired by Time Warner Telecom).[145]

3. Wholesale Carriers

65. In addition to cable operators and traditional telecommunications carriers, there is a class of carriers that offer mainly wholesale services to other telecommunications carriers. These "carrier's carriers," such as AboveNet, Enkido and PPL Telcom, offer dark fiber, wholesale access and transport, and a variety of other services designed exclusively for use by other providers. For example, AboveNet says it "builds and operates an office-to-office, 100% optical network that enables customers to create an efficient, cost-effective network that breaks economic and performance barriers imposed in the last mile by complex legacy telecom infrastructures."[146] Enkido says its "end-to-end optical network provides customers with reliability, scalability and the fastest provisioning in the industry."[147] PPL Telcom claims to offer the "latest technology to Enterprise and Carrier customers throughout the New York to Washington, D.C. corridor. From SONET to Wireless Infrastructure, PPL Telcom offers the reliability and service customers have come to expect from their telecommunications

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[143] Covad, *Covad Corporate Brochure*, http://www.covad.com/companyinfo/docs/CovadCorpBrochure.pdf.

[144] Deltacom, *About Us – Fiber Optic Network*, http://www.deltacom.com/fiberoptic_network.asp.

[145] Based on GeoTel data indicating presence of Xspedius fiber in Philadelphia; Time Warner Telecom Press Release, *Time Warner Telecom to Acquire Xspedius Communications* (July 27, 2006).

[146] AboveNet, *Solutions Overview*, http://www.abovenet.com/solutions/index.html.

[147] Enkido, http://www.enkido.com/.

provider."[148] Wholesale carriers allow other communications carriers to purchase bandwidth where such purchases may otherwise be unfeasible due to cost constraints or other limiting factors.

4. Other Competitors

66. In recent years there has been a dramatic increase in competition from systems integrators – such as Electronic Data Systems Corp., IBM Global Services, Accenture, Cap Gemini Ernst & Young, Northrup Grumman, General Dynamics, and Computer Sciences Corp. With the increasing complexity and utilization of IT and communications systems, large businesses are increasingly turning to network integrators to assess, plan, and manage their telecommunications systems. The need for network integrators is heightened by the need for extensive planning and management needed to create converged systems without having to create new physical networks from scratch. Network integrators thus provide managed services to large business customers, such as network design and operation.

67. Systems integrators have shown that they can compete successfully against traditional telecommunications providers. One Yankee Group study showed that 10 percent of surveyed businesses reported that a system integrator was its primary communications service provider in 2004.[149] Likewise, in the government sphere, systems integrators have emerged as leading competitors. Integrators have recently won many major contracts. For example, in October 2004, Lockheed Martin teamed up with AT&T, Hewlett-Packard Co., Hughes Network Systems Inc., and large local exchange carriers to become the comprehensive provider of managed network services to over 37,000 U.S. Postal Service locations. The $3 billion contract

[148] PPL Telcom, *Services*, http://www.ppltelcom.com/services.html.

[149] S. Hackett, Yankee Group, *The State of the Enterprise* at 28 (Nov. 30, 2004).

was awarded principally to Lockheed Martin.[150] In January 2006, a Lockheed-led team was awarded a $2 billion contract to create a new Air Force communications network.[151] Harris Corp. won a $1.7 billion contract for the nationwide FAA network;[152] EDS and Lockheed Martin won HUD contracts worth $400 million each;[153] EDS won the Navy's $8.8 billion NMCI networking contract;[154] General Dynamics won the contract for Pentagon renovations;[155] CSC won the $2 billion WIN-T contract in connection with the Army's Warfighter Information Network project[156] and was recently awarded a $1.9 billion contract to provide IT services to BAE systems;[157] and Northrop Grumman won the Air Force's $9 billion NetCENTS contract, as well as a $2 billion contract to run the State of Virginia's information infrastructure.[158] IBM

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[150] J. Miller, *USPS Taps Lockheed Martin for $3 Billion Telecom Contract*, Gov't Computer News (Oct. 14, 2004), http://www.gcn.com/vol1_no1/outsourcing/27505-1.html; United States Postal Service, *Postal Facts 2006*, http://www.usps.com/communications/organization/postalfacts.htm.

[151] Lockheed Martin Press Release, *Lockheed Martin Awarded $2 Billion Contract to Build Network Missions Operations System* (Jan. 27, 2006) (the team included Northrup Grumman, Telcordia Technologies, and SAIC, among others).

[152] Harris Corp., *2002 Annual Report* at 2, http://www.harris.com/harris/ar/archives/annual-report2002.pdf.

[153] U.S. Department of Housing and Urban Development, *HUD Information Technology Services*, http://www.hud.gov/offices/cpo/primes/hits.cfm.

[154] J. Perez, *EDS CEO: Navy Contract Under Control*, InfoWorld (Feb. 18, 2004).

[155] F. Tiboni, *General Dynamics wins Pentagon Contract*, Federal Computer Week (Aug. 13, 2004).

[156] CSC News Release, *CSC Wins $500 Million Forscom Aviation Support Contract* (Aug. 24, 2004) ("The aggregate ceiling value for all four contracts is $2 billion.").

[157] CSC News Release, *CSC Renews $1.9Billion IT Services Contract with BAE Systems for The Third Time* (May 2, 2006).

[158] W.D. Gardner, *USAF To Dole Out $9 Billion On Beefed Up Network*, Networking Pipeline (Sept. 14, 2004); FedSources, *Market News Flash – 10/31/05* (Oct. 31, 2005), http://www.fedsources.com/about/fsinews/mktflash_103105.asp.

Global Services won a recent contract with Lloyd's TSB bank to provide that company with converged voice and data systems, including 70,000 VoIP telephones.[159]

68. Because all communications services depend in part on customer premises equipment, one trend for enterprise customers is the development of increasingly sophisticated on-site communications capability to replace services that were previously provided through the network.[160] In part for this reason, a variety of equipment manufacturers are also competing for large business customers. Siemens offers a variety of converged communications solutions, including real-time IP systems, security systems, customer interaction solutions, and voice, data, and messaging systems, for enterprise customers.[161] Lucent provides a host of telecommunications services for business customers, including, among other things, its IP Centrex product, which is a fully managed service that combines the functionality of Centrex with the benefits of VOIP.[162] Lucent also provides managed data services including ATM, Frame Relay, and Ethernet-over-SONET to business customers.[163]

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[159] IBM Release, *At £500m IBM Voice and Data Services Deal To Enable Lloyds TSB's Next Generation Business Solutions* (Dec. 6, 2004).

[160] *See* T. Valovic, *et al.*, IDC Research, *U.S. Hosted IP Voice Forecast and Analysis, 2002–2007* at 1, 19 (Feb. 2003).

[161] Siemens Enterprise Networks, *Products, Solutions & Services*, http://enterprise.usa.siemens.com/products.html.

[162] Lucent Technologies, *IP Centrex Service for Enterprises*, http://www.lucent.com/solutions/ip_centrex.html.

[163] Lucent Technologies, *Optical Networking Solutions for Enterprises*, http://www.lucent.com/solutions/optical_networking_ent.html; Lucent Technologies, *Ethernet over SONET (EoS) Services for Enterprises*, http://www.lucent.com/solutions/ethernet.html.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on August 31, 2006

Quintin Lew

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on August 31, 2006

Judy K. Verses